THE CHEMIST

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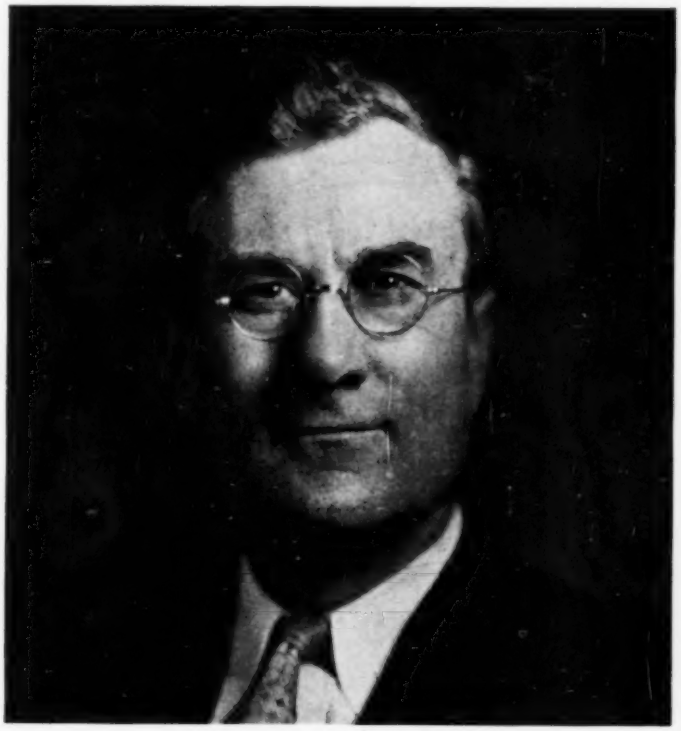

DR. WARREN K. LEWIS

1949 *A.I.C. Medalist*

(*See page* 5)

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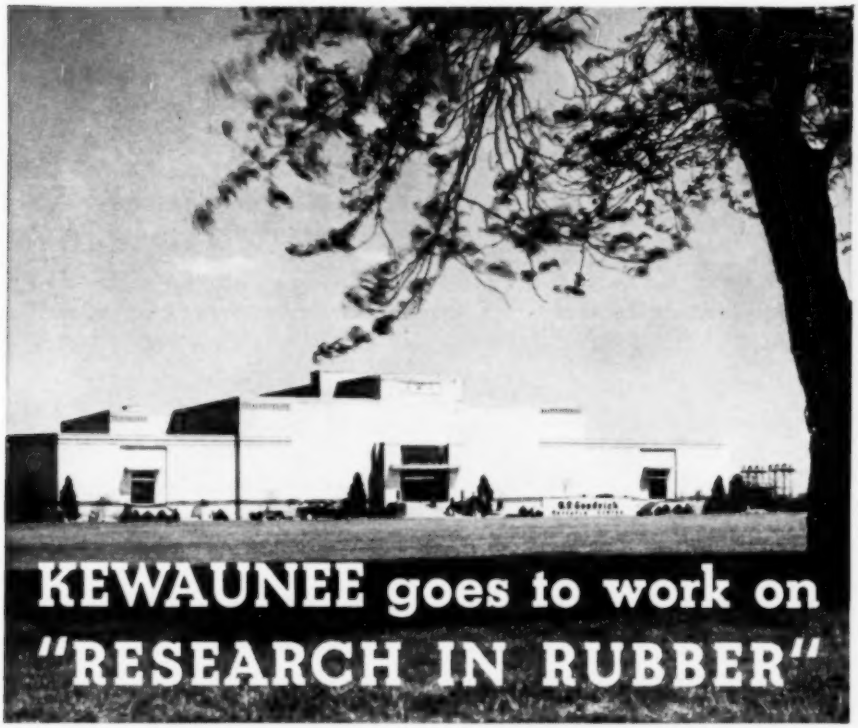

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SCHEDULED FOR FUTURE ISSUES

"The State of the Market for Chemists," by Tom Coffer.
"How Can a Chemist Increase His Value?" by C. P. Neidig, F.A.I.C.
"Industry Looks to Education," by Dr. Frank M. Surface.
Vocational Guidance Conference—A Report
Has the Chemists' Professional Status Improved?—A Survey
Other Material.

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N. Y. Chapter Committee Plans Series of Articles

The Member Advisory Committee of The New York Chapter of THE AMERICAN INSTITUTE OF CHEMISTS met on November 18th, under the chairmanship of Harry Bennett, F.A.I.C. The Committee will prepare a series of articles to be published in THE CHEMIST. Each article will be written by members qualified to give advice to INSTITUTE members on the following subjects: Employment; Commercial Development; Patents, copyrights and trademarks; legal; Education; Personnel Relations; Financial Problems; Personal; Business Financing; Publicity and Advertising; Marketing and Commercial Development.

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Warren K. Lewis to Receive A.I.C. Gold Medal for 1949

DR WARREN K. Lewis, emeritus professor of chemical engineering at The Massachusetts Institute of Technology, has been unanimously selected to receive the 1949 gold medal of THE AMERICAN INSTITUTE OF CHEMISTS.

Lawrence H. Flett, president A.I.C., states that the award is made in recognition of Dr. Lewis' administrative ability, leadership, and outstanding success as a teacher.

Presentation of the medal to Dr. Lewis will be made at the 1949 Annual Meeting of the INSTITUTE, to be held in Chicago, Illinois, May 6th and 7th.

Dr. Lewis, noted for his contributions to research, particularly in the fields of petroleum and leather manufacture, was born in Laurel, Delaware, in 1882. He was graduated from Massachusetts Institute of Technology in 1905 with the B.S. degree. In the same year he joined the staff of M.I.T. as research associate, but soon took leave for study in Europe, where he received the Ph.D. degree in 1908, at Breslau, Germany. Upon his return to the United States, he was employed for a year as chemist for the W. H. McElwain Company before he returned to the staff of M.I.T. in 1910. In 1914, he was promoted to the rank of professor, and during the years 1920 through 1929, he served as head of the Department of Chemical Engineering. With Professor W. H. McAdams of M.I.T., Dr. Lewis wrote "Principles of Chemical Engineering," one of the most important textbooks in its field. He has written numerous articles on chemical engineering for the technical journals. In 1936, he was awarded the Perkin Medal of the Society of Chemical Industry for valuable work in applied chemistry, and in 1947 the American Chemical Society awarded him the Priestley Medal. In 1937, he was awarded the honorary degree of D. Sc. by the University of Delaware and in 1947, Princeton University awarded him the honorary degree of D. Eng.

During World War II, Dr. Lewis served as acting executive officer of the Department of Chemical Engineering at M.I.T., and handled all

the administrative work in connection with war research projects and war training courses in that department. He was also consultant with the National Defense Research Committee of the Office of Scientific Research and Development on chemical warfare problems and served on special committees for the Manhattan District.

According to a reader poll by the *Chemical Bulletin*, official organ of the Chicago Section of the American Chemical Society, Dr. Lewis was designated in 1947 as one of the "ablest chemists and chemical engineers working in the United States."

Dr. Lewis was awarded the President's Medal for Merit in February, 1948, accompanied by the following citation:

> "for exceptionally meritorious conduct in the performance of outstanding services to the United States during the recent war period. Dr. Lewis as a member of Division 11 of the National Defense Research Committee, contributed a singularly great service to the war effort in organizing and inspiring the chemical engineering activities of the Committee on the problems of the Chemical Corps, especially those connected with gas masks, canister design, and the theory of aerosol generators and filtration. Dr. Lewis' services in this field and in connection with chemical engineering problems in the development of the atomic bomb were of inestimable value to the ultimate victory."

His memberships in the professional societies include the American Academy of Arts and Sciences, the American Chemical Society, the American Institute of Chemical Engineers, and the American Leather Chemists Association. He is an honorary member of the Institute of Chemical Engineers (British), and a member of The Chemists' Club of New York and of the Engineers' Club of Boston.

New York Chapter Meeting

A meeting of the New York Chapter of THE AMERICAN INSTITUTE OF CHEMISTS will be held Thursday, January 27th, at the Downtown Athletic Club, 18 West Street, New York, N. Y. Dinner ($5.00) will be served at 6:30. The program begins at 7:45 o'clock. Dr. R. W. Pilcher, associate director of Research of American Can Company, Maywood, Illinois, will speak on "The Rating and Evaluation of Chemists." He and his company have pioneered in the work of estimating the worth of technical and scientific employees and, in cooperation with other progressive concerns, have developed principles and methods applicable to this problem.

International Congress of Biochemistry

The First International Congress of Biochemistry will be held in Cambridge, England, from August 19 to 25, 1949. The Honorary Organizer is Lt. Col. Francis J. Griffin, 56 Victoria Street, London, S.W.1., England, from whom information may be obtained.

More About Registration of Chemists

Dr. Foster Dee Snell, F.A.I.C.

President, Foster D. Snell, Inc., 29 West 15th Street, New York 11, N. Y.

A circular comes to hand from the National Society of Professional Engineers, as prepared by N. W. Dougherty, dean of engineering, University of Tennessee. With the change of a word or phrase here and there and substitution of "chemist" for "engineer" it predicts what registration will do for the chemist when it is obtainable. An occasional comment has been interpolated. In this, bear in mind that registration and licensing are parts of a whole; the registered person receives a license which is the document showing that he is legally registered.

What Does Legal Registration Mean?

Legal registration of the chemist in a state will certify to the following:

1. Eligibility to perform professional service and creative work in the field of chemistry.
2. Ability to apply knowledge of the chemical, mathematical, and physical sciences to research, development, and analytical investigations.
3. That the registrant has taken the first step toward professional recognition. A board composed of his peers has pronounced him competent.
4. That the registrant is earmarked for professional activity as an arm of management.
5. That the registrant has a legal right to practice and this right can only be denied by law.
6. That those who know him vouch for his education, integrity and ability and that they believe he is competent to undertake work requiring sound judgment and unquestioned ability.
7. That through his State Board he may be certified for registration wherever his chemical services are needed.

To set up the glass equipment to carry out a reaction in the laboratory is not registerable but to set up equipment for the same reaction on a large scale requires registration. The pilot plant would appear to be the "no-man's land" between the two. So let us look at the history of engineering registration as a possible prediction of the future course for chemistry.

How Engineering Registration Became General

During the eighteenth and nineteenth centuries, professional registration passed out of the control of the guilds and became a function of the states. Since, however, it deals with professional activities, it is achieved by the states through boards composed of members of the professions.

In 1907, a number of engineers in the state of Wyoming secured the passage of an engineering registration law, the first to be enacted in the United States. From this beginning the movement grew slowly until the First World War brought engineering into the forefront as one of the most useful of the professions and one which not only made possible the winning of the war but one which involves the health and safety of the general public. From 1907 to 1917, only three states passed laws, but during the next eight years, twenty states had established registration procedures. Now all states have laws.

Early Opposition

In the early years of engineering registration, many engineers opposed the activity as a tax on their practice in the field of their competency. It is, of course, interference with unlimited practice by all who wish to claim the right to practice in any field, but it in no way limits the practice of those who are competent. In contrast anyone may represent himself to be a chemist. One appeared in court not long ago, who on questioning proved to be insufficiently educated to read or write. Strange as it may sound, it is the case.

Certainly there should be no serious objection by those who are competent to having their competency certified and at the same time ridding themselves of competition by the non-competent. It takes a little time and a small amount of money to maintain registration but the issues involved are worth time and money. Registration usually costs $25 and an annual renewal fee is usually $1.

Uniformity is difficult in the United States because each state is rightfully an independent commonwealth and has a right to establish its own police power regulations. To get a measure of uniformity, engineering practitioners have developed a "Model Law" which has been used as a guide for more than thirty years.

Model Law Widely Accepted

Civil engineers have sponsored registration from the passage of the first registration act and they have continued in the forefront of the movement since the turn of the century. Other engineers have joined in a national committee to get uniformity throughout the states. The first committee on uniform laws was organized in 1911 and by 1915 a uniform law had been written. From time to time, during the next thirty years, the "Model Law" has been revised and adopted by engineering

groups throughout the nation. The most recent edition, in 1946, has the approval of thirteen national engineering societies.

Legal Basis for Registration

Legal registration of members of the engineering profession is the exercise of the police powers of the state to protect the public health and public safety by insuring that only those persons who meet fixed educational and experience requirements may practice in the profession of engineering.

Surely the safety of the public was involved in the deaths from elixir of sulfanilamide and in the use of perchloric acid in a plating operation in California. The practice by the latter "chemist" has already multiplied the explosion insurance rate for laboratories.

Practically every design, every operation, and every process undertaken by the engineer has public implications. If he builds a bridge, designs a dynamo, constructs a steam turbine, or develops a process, he must consider the safety of the user and the general public. If he builds a water supply, installs air-conditioning units, builds a reduction plant or lights a building, the public health and public safety are involved. Engineering therefore comes under the police powers of the state. No less surely is the public safety involved in every chemical product and process developed. Each must not be dangerous due to toxicity or explosion hazard.

Regulation is achieved in two ways, either by protecting the use of the title or by regulating the actual practice of the profession. Both methods have been declared constitutional by state courts.

Each method has its peculiar advantages and disadvantages. For example in protecting the title, no difficult definition of engineering is needed, yet large discretion must be exercised by the Board in dealing with nationally accepted groups which have commonly used the title, e.g. locomotive enginemen who are almost universally called engineers. To regulate the practice of engineering the law must provide a definition of engineering which will distinguish its activities from all others. Here is the snag on which some state laws have encountered constitutional difficulty. The "Model Law" definition is good in many states, though it is never legally established until the supreme court in the state in question has said it is good and adequate.

Engineering has already overcome greater obstacles than exist in defining a chemist. Engineering has more and broader facets than chemistry. Yet as of approximately a year ago there were 114,698 registered engineers in the forty-eight states of the United States.

How to Register

To register for engineering, a form from the Secretary of the State Board

is filled in with details of education and experience. Both are very important. Engineers are a combination of good education and responsible experience. Both are parts of legal qualifications. (The same is true of chemists.) Many of the references should be practicing engineers. Laymen are not in a position to judge professional qualifications. Engineers should not judge members of other professions.

The applicant should give his own best estimate of his education and qualifying experience and he should give references who know enough about his work to give the Board their unbiased estimate of the correctness of the applicant's statements. The Board is trying to form a judgment which will be fair to the applicant and insure protection to the public.

Thus the qualified man is registered as a licensed member of his profession.

Results of Registration

The achieved results of registration to the engineer are here restated as what they would accomplish for the chemist:

1. *Official Status*: Registration is an official action of an arm of the state. As lawyers are dedicated to the services of the court, chemists are dedicated to the service of the people.
2. *Unity*:The chemical profession would achieve solidarity; registration would be one of the great unifying influences.
3. *Accredited Colleges*: "A graduate from a school or college of recognized standing" has been the moving cause for accrediting curricula.
4. *Professional Responsibility*: "Four or more years of experience satisfactory to the Board" would force an evaluation of the kinds of chemical experience which lead toward responsibility.
5. *Chemist-in-Training Status*: The "chemist-in-training" is a declared professional in the making and he should be accorded the rights of this status. He should never be forced to affiliate with any group against his own free choice.
6. *Professional Consciousness*: Legal status has been a strong force tending toward professional consciousness.
7. *Public Understanding*: The public is given a better understanding of the meaning of "professional" because of the required intellectual attainments.
8. *Badge of Competency*: The courts and public services accept registration as a badge of competency, Statutes require that public funds be expended under competent supervision.
9. *Personal Improvement* : Registration promotes self-improvement of those who just miss certification. They make careful

preparation for another trial to show qualification.

Chemistry is a profession in everything except registration. The engineering profession has benefited by registration. In doing so it has overcome greater difficulties than those which face registration of chemists. A phrase from literature comes to mind, "If every objection were required to be overcome in advance, nothing would ever be accomplished." There is a preponderance of advantage in favor of registration.

Honorary A.I.C. Membership to be Presented to Dr. M. L. Crossley

At a joint meeting of the New Jersey Chapter of THE AMERICAN INSTITUTE OF CHEMISTS and the North Jersey Section of the American Chemical Society, to be held February 14th, Dr. M. L. Crossley, F.A.I.C., will be presented with Honorary membership in the A.I.C., by President Lawrence H. Flett. August Merz, F.A.I.C., will introduce Dr. Crossley. Following the presentation, a symposium will be held on "Phosphorus," with Dr. L. F. Audrieth, professor of inorganic chemistry, University of Illinois, acting as chairman. Other speakers on the subject will be Dr. Howard Adler, F.A.I.C., director of Chemical Laboratories, Victor Chemical Works, Chicago, Ill.; John S. Harris, of the Organic Chemicals Division of Monsanto Chemical Company, and John C. Pernert, research director, Oldbury Electrochemical Company, Niagara Falls, N.Y.

Honorary A.I.C. Membership to be Presented to Dr. W. T. Read

The Washington, D.C. Chapter of THE AMERICAN INSTITUTE OF CHEMISTS will meet January 28th, at 8:00 p.m. in the Potomac Electric Power Company Auditorium, 10th and E Streets, N. W., Washington, D.C. Dr. W. T. Read, F.A.I.C., will preside at a symposium entitled, "Scientific Manpower" and will give a general survey of the broad problem of the subject. Professor B. D. Van Evera, of George Washington University, will speak on "Manpower and the Universities." J. C. O'Brien, of National Security Resources Board, will talk on "Manpower and National Defense." "Manpower Training in the Armed Forces" will be covered by Dr. D. M. Delo, chief, Personnel Section, Research Branch, Research and Development Group, General Staff, U.S. Army. Other speakers will discuss "Manpower and Civilian Government Agencies" and "Manpower and Industry." At the meeting, Dr. W. T. Read will be presented with Honorary Membership in THE INSTITUTE.

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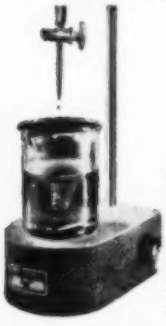

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Aries Reports Industry Expansion Slowed

Dr. Robert S. Aries, F.A.I.C., adjunct professor of chemical engineering, Polytechnic Institute of Brooklyn, on November ninth, told members of the American Institute of Chemical Engineers, that chemical industry expansion in this country has reached its peak for the present, and that the chemical process industries are expected to slow down new investments to about one billion dollars in 1949 and substantially less thereafter. During the war, twenty-five billion dollars were spent for new industrial plants and equipment. Since the war, expansion has been at the phenomenal rate of a billion and a half dollars per year, and now appears to be on the down curve because planned expansion has largely been attained. Construction costs for chemical process plants are more than double those in existence prior to the war and are putting a brake on the expansion of manufacturing capacity which has been a major development in U.S. economics since the war.

Cowles Chemical Company

Edwin Cowles, president of The Cowles Detergent Company, Cleveland 3, Ohio, announces that the name of this company has been changed to Cowles Chemical Company, to indicate that it is not restricted to the manufacture of detergents.

Rewards from Creative Work

Marvin J. Udy, F.A.I.C.

Consulting Chemist and Metallurgist, Niagara Falls, N. Y.

(A condensation of the Schoellkopf Medal acceptance address presented before the Western New York Section of The American Chemical Society. Reprinted through courtesy of *The Double Bond*).

IT was a question, in the summer of 1919, whether I should pursue baseball or chemistry as a means of livelihood. The question was still pending in November of that year when I accepted a position as chief chemist for the Haynes Stellite Company of Kokomo, Indiana. Elwood Haynes was the inventor of America's first automobile. He had also finished the development of Stellite just before the first world war and it was now a growing concern.

Christmas time found me in a music store buying a phonograph. The clerk was Frank G. Nicholson and when I came to signing up to pay so much per month, I had to divulge where I was employed. On hearing that I was employed by Mr. Haynes, Mr. Nicholson became quite excited and told of many talks he had had with Mr. Haynes, to induce him to make a rust proof piano-wire out of Stellite.

Before the evening was over, I learned that Mr. Nicholson had been a piano maker in the Baldwin Piano Factory and also that he was an accomplished musician. Sometime after midnight, I consented to taking a roll of piano wire home with me. I arrived home with the piano wire and the knowledge that pianos needed a rust-proof wire. Wires rusted and in rusting lost their tension necessitating retuning of the piano. Often in tuning, wires broke. The tone must be perfect and any coatings would interfere with perfect tone qualities. Also, the vibration would cause the coating to peel off. Lead, copper, nickel, all had been tried but none were successful.

From my experience in producing cadmium at the United States Mining Smelting and Refining Company at Midvale, Utah, it seemed that cadmium might have the correct properties for a solution to the piano wire problem. I soon found myself trying to plate the wire in small pieces.

In the weeks that followed I plated considerable wire, in fact, enough for several pianos. In the evenings at the music store I acted as a one-man audience to an excellent musician. The wire was finally accepted as being perfect for the purpose.

To me it seemed that if the cad-

mium coating was good for piano wire it was good for many other articles. The process grew from this point to where the Udylite Corporation was formed and financed by James C. Patton, vice president of the Haynes Stellite Company (as a personal matter). This was venture capital in its true character, the character that has made the United States what it is today. It picked up where the originator could no longer carry on, organized, managed and developed the idea into a successful business giving employment to many men.

Interesting Capital

The period prior to incorporation by Mr. Patten was a very interesting one. Patents had been applied for and claims granted. The problem of capital became acute. I had very little and Mr. Nicholson had less. Something had to be done. It was at this point that William A. Wissler, who was then metallurgist for Haynes Stellite Company, offered to pay for the patents for an interest. We settled with Mr. Wissler for one-third interest. This arrangement worked for a while but it soon became evident that it was too much for the three of us.

I then made a trip to Chicago to the offices of the American Steel and Wire Company to sell the idea. Chemists and engineers were called into conference and I displayed samples and extolled its worth as rust proof wire and the value of such a wire for pianos.

All present seemed to be interested but when I talked cadmium at $2.25 per pound everything seemed hopeless. Later I was turned over to Dr. Frank Morton whose title was acoustical engineer. I spent the afternoon in his office which was connected with a very large room filled with all kinds of musical instruments. On the walls were many maps showing the areas of most intensive rusting. The wet, humid coastal plains from Baltimore to New Orleans showed the worst condition. The arid and semi-arid areas showed the best conditions. It was the same all over the world. A vast need of rust proofing was very much in evidence and I began to feel more than ever that we had a worthwhile process. There was no argument about the need of rust proofing, but I did not make much headway in the matter of finance.

At the close of the afternoon, Dr. Morton bluntly asked me what I thought was the best preventive of rust. My reply was "based on my experience for the day, the best rust proofing is to let it rust." He replied, "Quite right, let it rust, we sell more wire."

This rebuff did not bother me much for I had gained some knowledge of the rust problem and its possibilities. I reasoned that cadmium plating was more pleasing to the eye than iron

oxide rust and from an esthetic point of view my faith was not too badly shaken.

Incorporation of the Udylite Company

James C. Patten came to me and asked me about my idea. He invited us to meet him in his office to talk the matter over, as he was interested in developing such a process. Accordingly Mr. Nicholson, Mr. Wissler and myself met with Mr. Patten for discussion. Mr. Patten had just returned from the first World War and his office was full of all sorts of instruments of destruction. We listened to a three-hour explanation of all the good and bad features of each instrument. Mr. Patten then suddenly asked me what was the proposition. I replied that we would give him one-quarter interest if he financed and managed the development. His reply was, "Okay, we will incorporate for $300,000 and get started." Three days later the company was incorporated under the name of the Udylite Process Company, the name having been selected by Mr. Patten's advertising agent unbeknown to me. The stock was divided four ways. It was that simple, and very amazing to me indeed.

Discovery of Bright Plating

The discovery of bright plating was very interesting. It seemed that one of the plating tanks gave an exceptional bright plate for some particular reason not plainly evident. In one of the plant clean-ups, a workman's wool shirt was fished out of this tank and the tank no longer produced bright plating. The plating was now like that from the other tanks and needed buffing to make it bright. The discovery of the wool shirt in the tank led to a series of tests in which many different materials were tried as addition agents. These trials included almost everything from milk to postum. Postum proved to be the most effective material we could add to the plating bath to get bright plating. Postum still forms the base for one of the several brightening agents now in use.

Growth of the Udylite Process Company

The company did not grow without trials and troubles. I believe one of the most difficult hurdles the Udylite Process Company had to overcome was the psychology of the scarcity of cadmium. The production was small and the cost of $2.25 per pound appeared high, but actually it was not too high for the small amount required for effective rust proofing. Cadmium is produced as a by product from the lead and zinc smelters and refiners. Where once it went to waste, it is now recovered and production has kept pace with increased use.

By 1944, the price of cadmium was 75 cents to 90 cents per pound and the total production was 8,865,000 pounds of which 5,496,000 pounds or 62 per cent was used in plating.

COMMERCIAL CHROMIUM PLATING

Most of the interesting incidents and highlights in the chromium plating development came after the experimental work was done and the process was being commercialized. One or two of these incidents illustrate some of the elations as well as some of the depressions that comes to the individual doing creative work.

At one time in the early period of commercializing chromium plating, Dr. Becket asked me to go to Cleveland and meet Col. F. M. Dorsey, who was developing the Madsenell nickel plating process, and talk to him about chromium plating. Col. Dorsey, I found, wanted to plate bumper bars for automobiles. He wanted to put on .001 inch of nickel and follow it with .001 inch of chromium, and he wanted to know if I could do it. My reply was, "Yes, but why so thick a deposit?" Col. Dorsey insisted on the heavy deposit, so we proceeded to put in the necessary equipment for chromium plating. When it was ready we plated a rack of some fifteen or twenty bars first with nickel and then with chromium. The results were excellent and the bars perfect.

Col. Dorsey then took the bars to the Hupmobile Company and tried to sell them. The bars created quite some excitement among the Hupmobile people until Col. Dorsey was asked for a price. Col. Dorsey made excellent arguments about the high quality of the bars and their durability, stating they would last forever. The reply was, "Fine, Mr. Dorsey, we are selling automobiles, we do not want to hand them down from generation to generation." The final result was less nickel, a flash of chromium, no more, no less.

Another incident occurred in Detroit. We had been asked to submit three samples of chromium plated radiator shells to William Knudsen, president of the Chevrolet Motor Car Company. He wanted them submitted in person in his office. We plated three radiator shells in the usual way, doing a good job at a price which we thought would be attractive. We took the three radiator shells to Mr. Knudsen, who went over them with a magnifying glass one at a time. He finally turned to us and said, "Boys, you know we are building Chevrolets, go back and see if you can give us a job in keeping with the Chevrolet." We did it but there was a little less copper, a little less nickel and just a flash of chromium.

A third instance is one in which one either stands or falls on his own judgment. I had received instructions from Mr. Becket to go to Worthington Pump and Machinery Company in Buffalo and see H. E. Brelsford, general manager, about some chromium plating. When I went into Mr. Brelsford's office, he was greatly perturbed and I was the recipient of some of his pent-up

wrath. After he was through, I explained I knew nothing of his problem but had been sent to give him what help I could. He then outlined the difficulty. A small plating shop in Buffalo had undertaken to chromium plate Diesel Engine piston rods for marine engines in some of the old shipping board vessels. What had been done consisted of getting a large tank and a motor generator but nothing more. The job was to plate a piston rod 15 feet long and 9 inches in diameter with .003 inch of chromium within plus or minus .0007 of an inch and leave it so it could be used without machining or polishing. I explained to Mr. Brelsford the nature of chromium plating and some of the things I would require to do the job. He called in Frank Klaiber, one of his engineers, and assigned him to the job with instructions to do exactly as I directed.

In a couple of weeks, Mr. Klaiber had everything ready and we proceeded to prepare the first piston rod for plating. It was late in the afternoon when we got the plating started and after calculating the time required I told them to take the rod out at a definite hour early in the morning.

The next morning when I called at Mr. Brelsford's office, I was told he was in the conference room waiting for me and to go right in. There were present government inspectors from the shipping board, company inspectors, engineers, and others. Mr. Brelsford told me the results and wanted to know how I did it. We had done a perfect job, we had a smooth hard plate, and the deposit was within the specified tolerance.

In the next two weeks eleven of these piston rods were plated with the same success. They were placed in the Diesel engine and the engine placed in a shipping board vessel. After this vessel made a trip to India and return, the engine was taken down and examined and the wear on the rods was so slight that it could not be measured. The result of this work was the building of a large plating plant. It did not last, however, for the newer nitrided steels replaced the chromium plate for this particular type of service.

EXOTHERMIC FERRO-ALLOYS

These products have generally become known as the "X" products. They are low grade ferro-alloys containing enough exothermic heat to bring the metal up to the melting temperatures of molten iron or steel to which they are added.

The development of exothermic ferro-chrome was not so orderly as the chromium plating development. It was more on the order of the cadmium plating development in many respects.

In 1931 through a series of circumstances, I found myself unemployed but only for a short time. My good

friend, F. A. Lidbury of the Oldbury Chemical Company, was instrumental in sending me to Anniston, Alabama, for the Swann Chemical Company (now Monsanto Chemical Company) to work in research and development.

One day Francis Maynard came to Anniston to talk to me about a chromium deposit. He had been offered a chromium deposit in Canada and wanted to know if it was good or not. He left a stack of reports on a property near Obonga Lake, Canada, and I later made a report to him which was negative. The ore was a very high iron ore and could not be used unless treated. All the ores of the United States and Canada seem to be of the same character as also do many of the ores of South Africa. It seemed to me that sooner or later these ores would have to be used and probably the time was about right for some method of treating them. The idea took form and in a short time I felt sure I could develop a solution for this problem and decided to return to Niagara Falls and do some work on my own. I returned to Niagara in the Spring of 1934.

First Stage of Development

Here again Mr. Lidbury came to my assistance. He gave me work at the Oldbury Chemical Company and also permission to do some work for myself.

I rented a small room from Niagara Falls Power Company in one of their garages. The Power Company supplied me with a transformer and I had built for me a small electric furnace which I proceeded to use on Saturdays and other times I found convenient. I had now given up baseball, it had become too strenuous, and therefore, I had more leisure time. My tests indicated one of two ideas that could be made to work successfully. The problem of financing further development, however, was present as usual.

Financing

About this time H. O. Synmes of Niagara Falls asked to bring A. R. Globe and R. O. Denman of Hamilton, Ontario, to see me as they were developing a chrome mine in Canada. They came to Niagara Falls one Saturday afternoon. I was not much impressed and told them I did not think much of their mine. It happened to be the same one that Mr. Maynard had brought to me in Anniston. I could not, however, shake Mr. Denman. He persisted and the result of several conferences was his offering to finance my processes and I agreed to go along.

Second Stage of Development

The second step of the development was to take the work to the plant of the General Abrasives here in Niagara Falls, where we rented a furnace position and proceeded to carry out the development on a 500 K.W. scale. Results warranted the next step which was to move to Sault Ste. Marie, Ontario, and take over a small

electric furnace plant built by Robert Turnbull. Included in this deal at Sault Ste. Marie was the Fitzgerald Laboratories which had been moved from Niagara Falls to Sault Ste. Marie by James Kelleher with the Turnbull development. This was to be the pilot plant and scene of future development. After some time it became evident that more capital was needed if the mine development and the process development were to be carried on at the same time.

It was at this point that the N. A. Timmins interests of Montreal came into the picture. The entire development was now placed in the hands of Leo H. Timmins. This was in the fall of 1937, and at this time I gave up my work at Oldbury Chemical Company to spend all my time with Chromium Mining and Smelting Corporation.

From 1937 to 1939 there was a period of intensive experimental work on a semi-commercial scale. We had to make the products and in such quantity that they could be tried in large 100-ton steel heats. In this work, R. O. Denman proved to be an excellent salesman and to him must go great credit in getting the products accepted in the steel trade. In this also was the fine cooperation of Jack McDonald of the Algoma Steel Company. Great credit must go to Leo H. Timmins for the excellent financial backing he gave to the project. Venture capital this time was at its best.

By 1939, the procedure of manufacture was decided and costs sufficiently determined to warrant building a complete operating plant. Acceptance in steel trade had been accomplished. The coming of the war brought modification to our plans with the result that the plant was greatly expanded and enlarged until by 1944 we were in production on a large scale.

The plant at Sault Ste. Marie has a capacity of 23,000 K. W. In 1947, a finishing plant was built in the Chicago area. The Government plant for making ferro-silicon at Spokane, Washington, has recently been leased; and will operate in conjunction with the finishing plant in Chicago. Thus a new industry has been established.

What has been my reward, you ask? My reward lies partly in the fact that I have had a good living and a busy life. It has been fast and interesting and hectic at times. The greatest reward, however, is the satisfaction which comes from creative work which has resulted in three new industries, employing many men, both directly and indirectly, and thus has contributed, in some small measure, I hope, to a better living for all. It is not often that three such experiences come to the same person in one lifetime.

When I look back on the years, I

shall always feel myself fortunate in having been connected with three developments which have resulted in three new industries. I am more than ever conscious of the influence of the men I have been associated with and have known.

Army Reserve Commissions for Chemists

Reserve commissions in the Army of the United States, from Second Lieutenant to full Colonel, are now available to qualified chemists who meet requirements of age, education, experience and physical condition. Applicants must be from twenty-one to fifty-five years of age for appointment in the Reserve Corps. All must be citizens. Military experience not required. For appointment as Second Lieutenant, a bachelor's degree in chemistry or chemical engineering or in related sciences, is required. For appointments from First Lieutenant to Colonel, applicants must possess the bachelor's degree, plus additional qualifying education or progressive, professional chemistry experience in one or any combination of the following fields: organic chemistry inorganic chemistry, biochemistry, physical chemistry, or analytical chemistry. Experience may cover one or a combination of such activities as production, research, development, design, administration, technical sales, teaching, analysis, consulting, technical writing and editing, patent work, purchasing and cost accounting.

Details of the program for commissioning civilian chemists are provided in Department of the Army Circular No. 210, dated July 14, 1948. Application forms and the circular may be obtained from local Reserve Headquarters or from Organized Reserve Unit Instructors, or from Army Headquarters at New York, Baltimore, Atlanta, Chicago, Houston or San Francisco, or from The Adjutant General, Department of the Army, Washington 25, D.C.

Silkes to Westinghouse Electric

Bernard Silkes, F.A.I.C. is now analytical chemist, Materials Engineering Department, Westinghouse Electric Corporation, E. Pittsburgh Works, E. Pittsburgh, Pa. He was formerly employed by the Pennsylvania Salt Manufacturing Company.

George F. Lee, F.A.I.C., consulting chemist of Johnstown, Pa., in September sold his commercial laboratory to John Strand, operating as the Strand Laboratories, Vine Street, Johnstown, Pa. Mr. Lee is retiring after having operated his laboratory for thirty years.

Dr. Alexander Silverman, head of the Department of Chemistry, University of Pittsburgh, spoke before the Kalamazoo, Mich., Section of the American Chemical Society, December ninth, on "The Lure of Glass."

Ohio Chapter A.I.C. Organized

G. M. Juredine

Council Representative

THE Northern Ohio Chapter (Cleveland), having turned in its charter to the Council of THE AMERICAN INSTITUTE OF CHEMISTS, following similar action by the Miami Valley Chapter (Dayton), and having simultaneously created an Interim Committee to formulate By-laws and to nominate Officers leading to the establishment of an Ohio Chapter, this step having been approved by the Council of the A.I.C., and By-laws then having been proposed by the Interim Committee to the Fellows of the A.I.C. residing in Ohio, along with nominations for officers, now on November 22, 1948, the Ohio Chapter is in official existence and the Interim Committee dissolved, Fellows in Ohio having unanimously adopted said By-laws and having elected their officers. Certificate of the election is submitted herewith:

Certificate of Election of Officers

Ohio Chapter, The American Institute of Chemists, Inc.

The undersigned, John E. Tanner, hereby certifies as a Notary Public of the State of Ohio that on the 22nd day of November, 1948, he participated in the tally, examination, and tabulation of the ballots received of the aforesaid organization, which ballots were in the number of 37, each received through the mail, and which mail was opened in the undersigned's presence and singly examined and called off by the undersigned, and which tabulation was checked by the undersigned, with the results that the following individuals were elected:

Chairman, Robert B. Waters
Chairman-Elect, George F. Rugar
Secretary - treasurer, Harold M. Olson
Council Representative, G. M. Juredine
Akron District Director, Otis D. Cole
Cincinnati District Director, Simon Mendelsohn
Cleveland District Director, David M. Gans
Columbus District Director, James R. Withrow
Director-at-large, Julian Toulouse

The undersigned also finds that for Dayton District Director there was a tie of 15 votes each between Charles M. Dille and Jacqueline F. Marcovich and a write-in of two votes for M. J. Hiler, and it was also found that the proposed by-laws were approved for adoption unanimously.

—John E. Tanner, *Notary Public*
My Commission Expires June 11, 1951

Dated this, the 23rd day of November, 1948.

The Ohio Chapter will have one business meeting each year, to be held in April. At this meeting, formal recognition of an outstanding Ohio chemist is planned.

Regarded among its foremost objectives is the cooperation of the chapter with other groups of chemists in Ohio, such as the eight local sections of the American Chemical Society in the State. The plan is to have at least one meeting each year in each of the five Districts, either jointly or in support of a program on professional subjects, as arranged by the District director. Active participation in the Ohio Chemists Council, Inc., is regarded as a chapter responsibility.

Communications to the Ohio Chapter should be addressed to its secretary-treasurer, Mr. Harold M. Olson, c/o The Harshaw Chemical Company, 1945 E. 97th Street, Cleveland 6, Ohio.

Economic Data on Chemists to be Compiled

The Economic Status Committee of the Chicago Chapter, A.I.C., under Herbert F. Schwarz, chairman, has set as one of its goals the collection, compilation, and correlation of all available data regarding the economic status of chemists, with the objective of forming a headquarters for this information. Dr. Louis Koenig, Armour Research Foundation, is contributing a personal collection accumulated during the past eight years. The material will be reduced to a uniform base in two ways: (1) By making adjustments for the purchasing power of the dollar. (2) By addusting for the hours of work.

The Committee believes that there is a considerable amount of material, not published in full or not yet in the index publications, to be found in surveys made by A.I.C. Chapters, A.C.S. local sections, or other agencies. It will be grateful for any assistance extended to it by those who know of unpublished material or who have collections or other data of interest. Material should be addressed to Dr. Koenig, c/o Armour Research Foundation, Technology Center, Chicago 16, Illinois.

The Nobel Prize in Chemistry for 1948, was awarded to Arne Tiselius, Swedish chemist, noted for his work in electrophoresis and in adsorption analysis.

Communications

Professional Comment

To the Editor:

Occasionally there are articles in THE CHEMIST that might well receive comment, constructively of course, from the members of the A.I.C. In the September issue, "The Question" shows answers from twenty-four of our elder members, not necessarily in age but in years of constructive work for the INSTITUTE. In effect the answers constitute excellent advice to the younger professional group.

Unfortunately in many instances the young scientist is enthusiastic in applying his knowledge, gained from study, in his first position. In all too short a time, because of working conditions, associations and salary, he becomes unconsciously discouraged, resulting in a mediocre application of his real ability.

Dr. Calcott's reply should assist the young professional man in overcoming lethargy. Mr. Dubbs reply is in reality the answer to one of the most outstanding shortcomings of the scientist. In recent years, 1943, this was driven home in a very forcible manner, as the U. S. Bureau of Agricultural and Industrial Chemistry was decentralized. A number of employees were "tops" in their particular fields of chemistry, but they were unfortunately too highly specialized and could not obtain other employment locally. Therefore they were "forced" to transfer, with their laboratories, bags and possessions, to distant cities. This was their only "out" if they wished to continue to earn a living. Such drastic changes in environment were real hardships and doubtless curtailed the output of valuable scientific information which they alone could have continued to give to the public. Had their earlier activities in scientific matters been more various, they would have had a better choice of action at the time of decentralization. Dr. Crossley's comments indicate such a direction.

It was especially interesting to note the reply of Florence E. Wall. Here we have comments from the only lady in the group of twenty-four, and as should be expected from her title, especially the part in parenthesis, she lived up to her professional ability and has given us possibly the best directions for a successful career.

—T. H. Tremearne, F.A.I.C.

Shattered Atoms

To the Editor:

In your January, 1948, number you published on pages 29 and 30 a note of mine entitled: "The Stuff of Dreams." In it I speak of conditions which may prevail in living organisms which, "fissure and shatter not only the molecule, but the atom itself."

With interest I note in the *Science*

News Letter of September 25, 1948, on first page, the following, evidently based on observations and studies made by Dr. John A. Wheeler, Princeton physicist, and pictured for the American Association for the Advancement of Science meeting at Washington: "Once a minute even as you read this a meson explodes inside your body and produces three pieces of sub-atomic 'shrapnel'" . . .

So my dream of a "physiological cyclotron" may be nearing truth!

—Dr. N. Sulzberger, F.A.I.C.

A.I.C. Delegate Reports

To the Secretary:

It is a pleasure to report that on Saturday, October second, I represented THE AMERICAN INSTITUTE OF CHEMISTS at the Fiftieth Anniversary Celebration of Northeastern University here in Boston. I participated in the academic procession on Saturday afternoon and was present at the conferring of a number of honorary degrees. There were also two addresses, one by the president of Harvard University and the other by the president of the University of Cincinnati.

In the evening I attended a very pleasant banquet at which it was announced that Northeastern University had achieved its goal of raising a fund of some $1,300,000.

May I express my appreciation of the opportunity to represent THE AMERICAN INSTITUTE OF CHEMISTS.

—Dr. Gustavus J. Esselen, F.A.I.C.

Fellowships Administered by the National Research Council

The Fellowships Office of the National Research Council announces that application for fellowships in the natural sciences will be accepted during the month of January, for consideration by the Fellowship Boards. The Fellowship programs are supported by the Rockefeller Foundation, the Radio Corporation of America, Merck and Company, the Carnegie Corporation, and the Atomic Energy Commission, and administered by the National Research Council. These provide for both predoctoral and postdoctoral research by U.S. citizens. Basic stipends for predoctoral fellowships range from $1500 to $2400 per year; those for postdoctoral fellowships, from $2500 to $5000 per year, to be determined by the appropriate Board. All programs provide for necessary tuition and fees in addition to the stipend. For application blanks and full information, address the Fellowship Office, National Research Council, 2101 Constitution Avenue, Washington 25, D.C.

Corrosion Course

Dr. Raymond E. Kirk, F.A.I.C., dean of the Graduate School, Polytechnic Institute of Brooklyn, Brooklyn, N Y. announces that a course on the corrosion of metals and alloys will be given this spring in the graduate night school.

Necrology

Edmund Burke, Sr.

Edmund Burke, Sr., retired chemist and meteorologist, Montana Agricultural Experiment Station, Bozeman, Montana, died May 15, 1948. He was born in Niles, Michigan, April 26, 1865.

At the age of twenty-three he went to Bozeman, Montana, where he spent several years as lumberjack, farmer, hunter, bronc rider, and fisherman. Montana State College was started in 1893, and Mr. Burke decided to become a chemist. As a part-time student, he received the B.S. degree in 1907. While obtaining the degree, he worked as laboratory technician at Montana State College, becoming assistant professor and also meterologist at the Agricultural Experiment Station. In 1908, he became head of the Chemistry Department at the Experiment Station. On two leaves of absence from the Station, he attended the Graduate School of Agriculture at Cornell University, and the Graduate School of Agriculture at Michigan Agricultural College.

He became an outstanding soil chemist through extensive studies of chemical analyses of Montana soils, particularly in relation to the production of wheat.

He was the author of numerous bulletins concerning scientific agriculture in Montana, and of numerous articles on soils, plant nutrition, the influence of alkali on concrete; fertilizers, and climate. In 1939, he became consultant to Montana State College, and in 1942 he retired. He was an active member of the Kiwanis Club, the Masons, and the Odd Fellows. He served as alderman for three terms, and as Mayor of Bozeman, Montana.

He is survived by his son, Edmund Burke, Jr., a Lt. Commander in the Navy. He became a Fellow of THE AMERICAN INSTITUTE OF CHEMISTS in 1936.

Andrew G. DuMez

Dr. Andrew G. DuMez, dean of the University of Maryland, School of Pharmacy, died September 27, 1948, at the age of sixty-three.

Dr. DuMez was born in Horicon, Wisconsin. He received the Ph.G. degree from The University of Wisconsin in 1904; the B.S. degree in 1907; the M.S. degree in 1910, and the Ph.D. degree in 1917. He served as instructor in pharmaceutical chemistry at the University of Wisconsin from 1905-1910; as professor of chemistry at Pacific University from 1910-1911; assistant professor of chemistry, Oklahoma Agricultural and Mechanical College from 1911-1912; director of the School of

Pharmacy, University of Philippines, 1912-1916; Hollister Fellow, University of Wisconsin, 1916-1917; associate pharmacologist, Hygienic Laboratory, U.S. Public Health Service, Washington, D. C., 1917-1926; and dean of the School of Pharmacy, University of Maryland, from 1926 until his death.

Dr. DuMez was active in pharmaceutical societies and in pharmaceutical work. He was a member of the Committee to Revise the Pharmacy and Drug Laws of the Philippine Islands, and he was appointed by the Vice - Governor to investigate the schools and colleges of pharmacy in the Philippines. He served as a member and secretary of a special committee to investigate the traffic in narcotics in the United States. He was a member of the Revision Committee of the *Pharmacopoeia of the United States*, and chairman of the Sub-committee on Nomenclature. He served as official delegate of the United States Government to the second conference on the Unification of Standards for Potent Remedies, held in Brussels, Belgium, in 1925.

At the time of his death, he was secretary of the American Council on Pharmaceutical Education, and vice-chairman of the National Pharmaceutical Survey Committee. He had served as president of the American Pharmaceutical Association and the American Association of Colleges of Pharmacy. From 1921 to 1935, he edited the *Yearbook* of the American Pharmaceutical Association, and he edited its *Pharmaceutical Abstracts* from 1935 to 1940. He was editor of the *Scientific Edition of the Journal of the American Pharmaceutical Association* in 1940 and 1941. He was co-author of *Quantitative Pharmaceutical Chemistry* and of numerous technical publications.

He was awarded the Remington Medal of the New York Branch of the American Pharmaceutical Association in 1948, the Committee on Award stating that, "few men in the pharmaceutical field have been so consistently devoted to the advancement of pharmacy. None has been more resolute in opposition to any and all schemes that would impair its professional and ethical standards."

Dr. DuMez was a member of many societies. He became a Fellow of THE AMERICAN INSTITUTE OF CHEMISTS in 1936.

Anderson W. Ralston

Anderson Wheeler Ralston, assistant director of research of the Chemical Research and Development Department, Armour and Company, Chicago, Illinois, died on December 5, 1948, of a heart ailment at the age of forty-nine.

Dr. Ralston was born in Martins Ferry, Ohio, December 29, 1899. He received the B.S. and M.A. degrees

from Kenyon College in 1922 and Ph. D. degree from Iowa State College in 1927. He was a member of the American Chemical Society, the American Oil Chemists Society, the Institute of Food Technologists, the Society for Chemical Industry. He was a fellow of THE AMERICAN INSTITUTE OF CHEMISTS and the American Association for the Advancement of Science. His honor societies include Sigma Xi, Phi Kappa Phi, and Phi Lambda Upsilon.

Since 1931, Dr. Ralston has been associated with Armour and Company, where he was concerned primarily with the chemistry of fats, fatty acids, and their derivatives. He has published extensively through the medium of technical journals where over ninety articles have appeared under his name, and he has been granted over one-hundred patents.

Dr. Ralston's work has received wide recognition. He held the Foster Memorial Lectureship at the University of Buffalo in 1945, and in 1946 was the recipient of the Midwest Award of the St. Louis Section of the American Chemical Society for his outstanding contributions in the field of fatty acid derivatives. His book, *Fatty Acids and Their Derivatives*, published early in 1948, is a major treatise in the field.

He is survied by his widow and one son.

On Research Reports

At a recent meeting of the Association of Research Directors held in New York, Dr. C. O. Tongberg, assistant director of research of the Research Division, Standard Oil Development Company, spoke on "An Adequate System of Report Writing Within a Research Organization."

He stressed the importance of an adequate system of report writing, especially for larger organizations. A good report system allows transmission of research data promptly to a relatively large number of people within the organizations; serves to keep management advised of new developments, and serves to maintain an effective legal record of work done. It gives management a means of evaluating the status of research problems, and it makes the research man view work more critically.

A clear, concise report conserves the time of the reader. Furthermore, a technical man has a better chance of convincing management of some point, if a good report is written; and on the other hand, the best research may lose a considerable part of its value, if the report poorly presents the data to management.

Fisher Scientific Company announces that the Fisher Scientific Company, Ltd., building in Montreal, Canada, is being expanded to add to warehouse capacity for stocking chemicals and apparatus.

How A.I.C. Members Are Elected

J. M. McIlvain, F.A.I.C.

National Councilor, A.I.C.

Occasional comments made to officers or members of the National Council indicate that some members of the A.I.C. are not aware of the screening process which is used in connection with applications for new membership.

All applications are reviewed in detail by a committee of the National Council. Where the information supplied is not complete, or where questions are raised as to the eligibility of the candidate for membership or as to the proper grade of membership, correspondence is initiated with the applicant's references or with individuals, either in the membership of the INSTITUTE or outside of it, who may be expected to have the background to resolve such consideration.

The reviewing committee then makes a recommendation to the Council, which is carefully considered and forms the basis for a decision by the Council as to the admission of the applicant and the grade of membership to which he shall be entitled.

Occasionally and regrettably, the committee must turn down applications from fine people who are greatly distinguished in their own field, which, however, does not happen to be chemistry. The following letter, by Horace L. Smith, Jr., illustrates a case in which the correspondent fully realized the problems of the committee and responded in a very fine spirit:

"I can readily understand the viewpoint of the committee on qualifications with reference to my application for membership in the INSTITUTE. I am really glad to see that it is upholding the standards of the INSTITUTE and you should feel in no way embarrassed about the situation, because from the start I did not think that I possessed the proper qualifications for membership in any organization of chemists."

Pittsburgh Analytical Symposium

Dr. I. M. Kolthoff, F.A.I.C., head of the Division of Analytical Chemistry, University of Minnesota, will be a featured speaker at Pittsburgh's Analytical Symposium-Exposition, to be held January 20-21, 1949. Dr. Henry Freiser, University of Pittsburgh 13, Pa., is in charge of exhibits.

Sausville to Cincinnati

Joseph W. Sausville, M.A.I.C., has recently been appointed assistant professor of chemistry at the University of Cincinnati, Ohio. He was formerly with the Nepa Division of Fairchild Engine and Airplane Corporation, Oak Ridge, Tennessee.

COUNCIL

OFFICERS

President, Lawrence H. Flett
Vice-president, Raymond E. Kirk
Secretary, Lloyd Van Doren
Treasurer, Frederick A. Hessel

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G. M. Juredine, *Ohio Chapter*
M. L. Crossley, *At-Large*
Gustav Egloff, *Past President*
Karl M. Herstein, *New York Chapter*
Lester F. Hoyt, *Niagara Chapter*
Donald B. Keyes, *At-Large*
R. H. Kienle, *At-Large*
Harold A. Levey, *Louisiana Chapter*
H. W. Mackinney, *New Jersey Chapter*
J. M. McIlvain, *At-Large*
C. P. Neidig, *At-Large*
E. H. Northey, *At-Large*
L. F. Pierce, *Los Angeles Chapter*
Donald Price, *At-Large*
Charles W. Rivise, *Pennsylvania Chapter*
Royal E. Rostenbach, *Washington Chapter*
Maurice Siegel, *Baltimore Chapter*
Foster D. Snell, *Past President*
Charles L. Thomas, *Chicago Chapter*
James R. Withrow, *At-Large*
Lincoln T. Work, *At-Large*

December Meeting

The 252nd meeting of the National Council, A.I.C., was held on December 8, 1948, at The Chemists' Club, 50 East 41st Street, New York, N.Y. President Lawrence H. Flett presided. The following officers and councilors were present: M. L. Crossley, L. H. Flett, F. A. Hessel, H. W. Mackinney, C. P. Neidig, C. W. Rivise, R. E. Rostenbach, F. D. Snell, L. Van Doren, and J. R. Withrow. V. F. Kimball was present.

The minutes of the previous meet-

ing were approved.

President Flett reported that he had visited three chapters of the Institute recently. He had spoken before the Niagara Chapter and informally met with members of the Washington Chapter. The Chicago Chapter is making plans for the next annual meeting of the Institute at the Edgewater Beach Hotel, Chicago, Illinois, May 6th and 7th, with plant trips planned for one of the two days.

President Flett urged members of the INSTITUTE to contribute articles to THE CHEMIST and mentioned the plan of the New York Chapter's Member Advisory Committee to prepare a series of short articles on various subjects. (See page 3). He suggested that committees send in reports from time to time during the year so that these can be published one at a time instead of all together in one issue of THE CHEMIST.

The secretary reported that we now have 2,309 members. The death of Dr. Anderson Wheeler Ralston was recorded with regret.

A letter from the Chairman of the Los Angeles Chapter, suggesting that a chapter of the A.I.C. be formed in San Francisco, was referred to President Flett.

The election of officers of the newly formed Ohio Chapter was announced. (See page 21).

The treasurer's report was presented and accepted.

The following amendment to the By Laws was finally adopted:

ARTICLE XI

MEMBERSHIP

The following qualifications shall be used by the Committee on Qualifications as a guide in their consideration of membership applications. It should be understood that the essential qualification for membership in the Institute and the differentiation between grades of membership is professional maturity. The requirements stated below are not necessarily the sole index of this:

Section 1. A candidate for Fellow should have successfully completed four years of collegiate work in chemistry in an educational institution acceptable to the Council, and in addition have completed ten years of progressive experience and responsibility in the practice of the profession, satisfactory to the Council.

Section 2. A candidate for Member should have successfully completed four years of collegiate work in chemistry in an educational institution acceptable to the Council and in addition have had four years of progressive experience and reponsibility in the practice of the profession, satisfactory to the Council.

Section 3. A candidate for Associate should have successfully completed four years of collegiate work in chemistry in an educational institution acceptable to the Council.

Section 4. Postgraduate study is important and therefore each year of successfully completed postgraduate studies in chemistry, to a maximum of three years, may be considered as equivalent to two years of progressive experience in the qualifications for membership as Fellow or Member.

Section 5. An Associate or Member after having completed the stated years of progressive experience in the practice of the profession may apply for the next higher grade of membership. The secretary shall consult the records and advise of the opportunity for such application.

Mr. Neidig reported for the Committee on Activities of Younger members.

Dr. Rostenbach stated that the Washington Chapter would take up the subject of employment and manpower at a forthcoming meeting. He reported that the Washington Chapter had held an unusually successful meeting on November 19th, when Special Agent Parsons, F.B.I., discussed the scientific aspect of crime detection, before some 200 members and guests. The Washington Chapter indicated that it would like to see THE CHEMIST published twice a month. Plans were announced for a meeting to be held on January 28th.

The committee which prepared the resolution regarding Congressional Investigating Committees, passed at the October meeting of the Council, was asked to prepare a summary of the letters received.

Mr. Rivise reported that the first meeting of the Pennsylvania Chapter would be held early in February.

Dr. Withrow discussed ethics as applied to universities, and the influence of government on research.

It was agreed that a series of editorials by councilors would be an interesting feature to add to THE CHEMIST and the editor was instructed to solicit these.

Dr. Mackinney reported on the activities of the New Jersey Chapter, including plans for future meetings and a report on the meeting held November 30th, at the Esso Research Laboratories, Linden, N.J. The N.J. Chapter plans to prepare its program for the coming year by May first.

Dates for the 1949 meetings of the National Council were selected to be the second Wednesday of each month, unless a need for change should arise.

Mr. Neidig called attention to the Mattiello Memorial Library at Brooklyn Polytechnic Institute. Upon motion, it was decided to contribute books to this library and President Flett appointed the following committee: Dr. Foster D. Snell, chairman, Dr. M. L. Crossley and Mr. Neidig.

Upon motion made, seconded, and carried, the following new members were elected:

FELLOWS

Bruson, Herman Alexander
Manager, High Polymer Laboratories, Industrial Rayon Corp., West 98th and Walford, Cleveland, Ohio.

Fried, John B.
Sales, Calco Chemical Division, American Cyanamid Co., 48 West 38th Street, New York, N. Y.

Gray, Kenneth R.
Research Group Leader, Rayonier Inc., Shelton, Washington.

Griffith, Frank Shoemaker
Senior Investigator, The New Jersey Zinc Co., Palmerton, Pa.

Guthmann, W. S.
President, Edwal Laboratories, Inc., 732 South Federal Street, Chicago 5, Illinois.

Kaser, Margaret M.
Biochemist, Veterans Administration Center, Wood, Wisconsin.

Lipmann, Fritz A.
Head, Biochemical Research Laboratory, Mass. General Hospital, Boston, Mass. *Associate in Biochemistry,* Harvard Medical School.

Mahoney, John Francis
Head, Technical Service Section, Merck and Co., Inc., Rahway, New Jersey.

Marberg, Carl Mauritz
Research Associate, Standard Oil Co., (Indiana), Box 431, Whiting, Indiana.

McGavock, William Crews
Professor of Chemistry, Trinity University, San Antonio 1, Texas.

Mihm, Clifford Henry
Master Chemist, Phillips Petroleum Co., Box 968, Phillips, Tex.

Seiden, Rudolph
Chief Chemist, Haver - Glooer Labs., 1817 Homes St., Kansas City, Missouri.

MEMBERS

D'Antonio, Louis Joseph
Research Chemist, Torigian Laboratories, 218-20 98 Avenue, Queens Village, L.I., N.Y.

Council Meeting Dates

Meetings of the National Council of THE AMERICAN INSTITUTE OF CHEMISTS are scheduled to be held at 6:00 p. m. at The Chemists' Club, 52 East 41st Street, New York 17, N.Y., on the following dates:

January 12, 1949
February 9, 1949
March 9, 1948
April 13, 1949

Dorin, Henry
Teacher, Brooklyn Tech. High School, 29 Fort Green Place Brooklyn, New York

Kelley, Patricia Hugh
Research Chemist, Foster D. Snell Inc., 29 West 15th Street, New York, New York.

Nash, Nathan H.
Chief Chemist, Lanco Products Corp., 601 West 26th Street, New York 1, New York.

Weed, Homer Clyde
Assistant, Department of Chemistry, The Ohio State University, Columbus 10, Ohio.

ASSOCIATES

Westhoff, William Meredith
Technical Sales, Whittaker, Clark and Daniels, Inc., 260 West Broadway, New York 13, New York.

There being no further business, adjournment was taken.

Correction

The middle initial "B," which appears in the name R. B. VanderWal, page 504, November issue of THE CHEMIST, should be changed to "J". The correct name is R. J. VanderWal.

Chapters

Baltimore

Chairman, Ralph W. Lamenzo

Vice-Chairman, Rev. E. S. Hauber, S. J.

Secretary-Treasurer, J. Bernard Edmonds, 3816 Greenmount Ave., Baltimore 18, Md.

Council Representative, Maurice Siegel

Reporter to The Chemist, Richard B. Treash

The Baltimore Chapter visited the plant of the Coca-Cola Bottling Company of Baltimore on the afternoon of November 11th. The visit included a complete tour of the plant in action, with emphasis on sanitary control. This was the first of the plant visits of the current season. In the evening, an illustrated lecture on "Carbonated Beverages" was given at Loyola College by Dr. Bert H. Wells, director of chemical control of the Coca-Cola Company, Atlanta, Georgia. Ample evidence of the reputation of the speaker and the universal interest in his subject was shown by the record attendance of eighty-five members and friends.

Curtis Elected President

Francis J. Curtis, F.A.I.C., vice president of Monsanto Chemical Company, St. Louis, Missouri, has been elected president of the American Institute of Chemical Engineers.

William R. Willets, F.A.I.C., chairman, ASTM Committee D-6, addressed a joint meeting of the New England District of the American Society for Testing Materials and the New England Section of the Technical Association of the Pulp and Paper Industry, November 19th, at Worcester, Mass. His paper, "The Philosophy of Specifications" was co-authored by L. S. Reid, assistant general purchasing agent of the Metropolitan Life Insurance Company. It dealt with the application of philosophical principles to the preparation and use of specifications, particularly as they apply to paper. Mr. Willets is with the Technical Service Laboratories of Titanium Pigment Corporation, New York 13, N. Y.

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For Your Library

Reagents for Qualitative Inorganic Analysis

By C. J. Van Nieuwenburg and J. Gilles. Elsevier Publishing Company, Inc. 1948. 401 *pp.* 6-¼" x 9-¼". $7.50.

This is the "Second Report" of the International Committee on new analytical reactions and reagents of the International Union of Chemistry. The report is offered as a critical study of the large number of reagents which often have been incompletely studied and described. The book is written for the practical chemical analyst and as such it has been devised with a view to practical analysis. The reagents which are described are recommended as sufficiently sensitive and selective for normal analytical requirements. A maximum of five reagents per element was included in order to restrict the report to practical limits. The volume is provided with an exhaustive bibliography and contains an appendix with fifty-seven microphotographs.

—William H. Van Delden, F.A.I.C.

Fatty Acids and Their Derivatives

By A. W. Ralston. John Wiley and Sons, Inc., N.Y., Chapman Hall, Ltd., London. 1948. 986 *pp.* $10.00.

This volume briefly traces the history of the fatty acids, their occurence in nature, syntheses, and physical properties. The author, who was assistant director of research of Armour and Company, most completely presents the numerous derivatives of the fatty acids of commerce, showing methods of synthesis, physical and chemical properties. Moreover, he has employed all of the most recent, pertinent patent literature in discussing the several fatty acids and their derivatives, so that the reader is acquainted with not only the theory but the application of such fatty acid derivatives to the chemical industry of today.

The book is invaluable to the organic chemist as a reference work.

—William B. Canfield, F.A.I.C.

Differential Equations of Physics

By L. Hopf. Translated by Walter Nef. Dover Publications. 154 *pp.* 4½" x 6⅝." $1.95

This is a very compact volume of differential equations, ordinary differential equations of the mechanics of particles, partial differential expressions, vector fields, divergence and curl, solutions by Eigen functions, change of variables and the use of singularities. It crowds much into a small space.

—Dr. John A. Steffens, F.A.I.C.

Chemical Architecture

Frontiers in Chemistry Series. No. V. Interscience Publishers. 1948. 300*pp.* 6½" *x* 9¼." $4.50.

The series, *Frontiers in Chemistry*, covers Western Reserve University lectures, published for a wider audience. This volume includes lectures by Hugh S. Taylor on Reaction Mechanism; Charles P. Smyth on Dipole Moments; W. Conrad Fernelius on Coordination Compounds; B. E. Warren on X Ray Studies; H. Mark on Polymer Solutions, and Miroslav W. Tamele on the Nature of Inorganic Gels. Each has presented the data and hypotheses of his field and brought the subjects up to date.

—Dr. John A. Steffens, F.A.I.C.

Books Announced

"The Humanities and Sciences in Denmark during the Second World War." A survey written by specialists. 1948. 723 pp. Price: Danish Crowns 60,00. Einer Munksgaard, Norregade 6, Copenhagen, K. Denmark.

"Industrial Hygiene and Toxicology." Vol. I. Frank A. Patty, editor. 531 pp. $10.00. Interscience Publishers, 215 Fourth Avenue, New York 3, N.Y.

"Organic Reactions, Vol. IV" Roger Adams, F.A.I.C., Editor $6.00. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N.Y.

"Bayley's Chemists' Pocket Book," edited by F. G. Angell, B.Sc., Ph.D., F.R.I.C. 10th Edition. 513 pp. Price 30/—. Published by E. & F. N. Spon, Ltd., 57, Haymarket, London, S.W. 1., England.

"Encyclopedia of Chemical Technology," Vol. II, edited by Raymond E. Kirk, F.A.I.C., and Donald F. Othmer, F.A.I.C. 960 pp. $20.00. Interscience Publishers, Inc., 215 Fourth Ave., New York 3, N.Y.

"Aquametry." Application of the Karl Fischer reagent to quantitative analyses involving water. By John Mitchell Jr., and Donald Milton Smith. 1948. 460 pages. $8.00. Interscience Publishers, Inc., 215 Fifth Avenue, New York 3, New York.

"Managerial Control of Business." Editor-in-Chief, George T. Trundle, Jr. 409 pp. $5.00. John Wiley & Sons, Inc., 440-4th Ave., New York 16, N.Y.

"Catalogue of Insecticides and Fungicides. Vol. II, Chemical Fungicides and Plant Insecticides." By D. E. H. Frear. $5.50. The Chronica Botanica Co., Waltham, Mass. Stechert-Hafner, Inc., New York, N.Y.

"Crystal Structures," by Ralph W. G. Wyckoff. Loose leaves with binder. Sec. 1: 600 pp. $8.00. Interscience Publishers, Inc., 215 Fourth Avenue, New York 3, N.Y.

Booklets

"Let's Look It Up." Supplement to annual book catalog. Reinhold Publishing Corporation, 330 West 42nd Street, New York 18, N.Y.

"Textile Reports." Featuring German technology as reported by experts. Request list from Chemical Publishing Company, Inc., 26 Court Street, Brooklyn 2, New York.

"Technical Tips". Winter, 1948. Book List. Chemical Publishing Company, Inc., 26 Court Street, Brooklyn 2, New York.

"Annual Report of the President." Illinois Institute of Technology, 3300 South Federal Street, Chicago 16, Illinois.

"New Arwaxes." Technical data sheet C-46. Available from American Resinous Chemicals Corp., Peabody, Mass.

"Research at the Standard Oil Co. (Indiana)", 52-page booklet, illustrated, covering past and present research and description of laboratories. Request it from the company at 910 S. Michigan Ave., Chicago 80, Ill.

"The Texas City Disaster. Facts and Lessons." The National Board of Fire Underwriters, 85 John Street, New York 7, N.Y.

"Special Survey and Directory of Western Chemical Industries." $1.00. Order from *Chemical Engineering*, McGraw-Hill Publishing Company, 68 Post Street, San Francisco, California.

"Report of the Temporary Commission on the Need for State University." (New York) Legislative Document, 1948, No. 30. Free from the Bureau of Publications, State Education Department, Albany 1, New York.

"Land Use and Its Relation to Foreign Trade." Address by Thomas D. Cabot, President of United Fruit Company, dealing with the company's activities in the countries bordering on the Caribbean Sea. Available from Middle America Information Bureau, Box 93, Lenox Hill Station, New York 21, New York.

"Lacquer Sanding Sealers." 246-page illustrated booklet. Available from Hercules Powder Company, Wilmington, Delaware.

"New Demicon Liquid Floor Hardener." Descriptive leaflet. Demarest Engineering Co., 790 Broad Street, Newark 2, New Jersey.

"Moving Sale. . ." Leaflet listing sale items of laboratory equipment. The Emil Greiner Company, 20-26 North Moore Street, New York 13, New York.

BOOKLETS

"New Radiation Pyrometer for Low-temperature Processing Control." Descriptive 2,700 word article covering field of application, etc. The Brown Instrument Company, Philadelphia, Pa.

"Wear Prevention Characteristics of Lubricating Oil." Vol. 4, No. 4. of Timely Petroleum Topics. Request it from Phoenix Chemical Laboratory, Inc., 3953 Shakespeare Avenue, Chicago 47, Illinois.

"Hamilton Stopcock Adapter." Leaflet. The Emil Greiner Company, 20-26 North Moore St., New York 13, N.Y.

"Catalog of Essential Oils, Balsams, Oleoresins, Flavors, & Perfume Materials." Fourth Quarter 1948. Magnus, Mabee & Reynard, Inc., 16 Desbrosses Street, New York 13, New York.

"Impact of Tonnage Oxygen on American Chemical Industry." By Charles R. Downs, F.A.I.C., 50 East 42nd Street, New York 17, N. Y. Reprint from *Chemical Engineering*, Aug. 1948.

"Dow Corning Silicone Note Book. Fluid Series No. 3." Dow Corning Corporation, Midland, Michigan.

"Instruments for Measuring Appearance and Other Optical Factors," 8-page booklet. Available from Henry A. Gardner Laboratory, Inc., 4723 Elm Street, Bethesda 14, Maryland.

Dr. Foster D. Snell, F.A.I.C., president of Foster D. Snell, Inc., New York, spoke on "What's New In Chemistry" before the Springfield Industrial Association, November ninth.

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New Research Publication

A new scientific journal, the *Journal of Southeastern Research*, to be published by Southeastern Research Institute, Inc., covering engineering research progress in eleven southeastern states, will be issued in January. The new quarterly will carry technical papers, news reports, and editorial studies. Activities in Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North and South Carolina, Tennessee, Texas and Virginia will be covered. This region today supports more than twenty university research centers, ten state engineering experiment stations, and some two-hundred commercial industrial laboratories. H. McKinley Conway, Jr., former assistant to the director of research, National Advisory Committee for Aeronautics, Washington, D. C., is editor. Inquiries should be addressed to the editorial office at 5009 Peachtree Road, Atlanta, Ga.

Siam Science Bulletin

The editor of the *Siam Science Bulletin* announces that this journal has resumed publication, which will be irregular until it can again be issued quarterly. The first postwar copy is Vol. IV, No. 1, 1947, featuring "Studies of Precious Stones in Siam." The second issue is Vol. V, No. 1, 1948, featuring "The Cupriferous Schist of Pnom Sarakam." Both may be secured from the Department of Science, Ministry of Industry, Bangkok, Siam.

Chemistry in Canada

A new monthly technical and news magazine, *Chemistry in Canada*, will be published in April by The Chemical Institute of Canada. The name of the editor will be announced later.

Monsanto Awarded Trophy

Monsanto Chemical Company was awarded the bronze "Oscar of Industry" trophy by the *Financial World* on October 21st, for having the best 1947 annual report in the chemical industry.

More than 4,000 corporation annual reports were submitted to this "annual report survey," and these were judged in one-hundred industrial classifications. Following Monsanto's "first" in the chemical industry category, Interchemical Corporation was runner-up for top honors, and Atlas Powder Company took third place.

Congress of Crop Protection

The Second International Congress of Crop Protection, will be held in London, England, July 21-28, 1949. The Congress will be organized in six sections comprising Insecticides; Fungicides; Plant Growth Regulators; Toxicology of Crop Protection Substances; Methods of Application and Analytical Methods and Standardization. Information may be obtained from the Honorary Organiser, Francis J. Griffin, A.A.A., F.R.E.S., 56 Victoria Street, London, S.W.1, England.

Opportunities

Physical Science Administrator

The U.S. Civil Service Commission announces examinations for Physical Science Administrator for positions in Washington, D.C., and vicinity, paying $5,232 to $10,305 a year. Degree in physical science, experience, and administrative experience required. Information and application forms may be obtained from first and second-class post offices, Civil Service regional offices, or from the Commission at Washington 25, D. C.

Biochemist Wanted

The Veterans Administration Hospital, 74th and J. Streets, Lincoln 1, Nebraska, has a vacancy for a biochemist at $4479.60 per year. B.S. degree in chemistry required, plus experience of at least two years, of which six months must have been spent in fundamental research. Information may be obtained from the Hospital.

Positions at Aberdeen Proving Ground

Aberdeen Proving Ground lists the following positions to be filled among others: Physicists, P-1, $2974.80 per year; Physicist, P-2, $3727.20; Physicist, P-3, $4479.60; Training Officer (Chemistry and Metallurgy), P-4, $5232.00; Information and Editorial Specialist, $3727.20; To apply, obtain Application for Federal Employment Standard Form 57, from Civil Service Offices or Dept. of the Army Civilian Personnel Office. Mail completed form to Civilian Personnel Division, Room 9, Headquarters Building, Aberdeen Proving Ground, Maryland. For information, request Announcement No. 49, from Chief, Civilian Personnel Division.

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Pacific Chemical Exposition

The second Pacific Chemical Exposition by the California Section of the American Chemical Society, will be held November 1-5, 1949, at the San Francisco Civic Auditorium. The Pacific Industrial Conference will run concurrently with the Pacific Chemical Exposition. Marcus W. Hinson, Hotel Whitcomb, San Francisco 1, California, is exposition manager.

Tubis with Radioisotope Laboratory

Manuel Tubis, F.A.I.C., chairman of the Los Angeles Chapter of the Institute (see December issue of THE CHEMIST) is now research biochemist of the Radioisotope Laboratory at the Veterans Administration, Los Angeles, where he is engaged in the application of radioisotopes for therapeutic purposes. Mr. Tubis was formerly technical director of American Biochemical Corporation, Los Angeles.

Hochstadter Appointed

Irving Hochstadter, F.A.I.C., consulting chemical engineer of New York, N.Y., has become an associate consultant for the firm of Malcolm McGhie Company, Industrial Consultants, 230 Park Avenue, New York, N.Y.

Water and Sewage Works Associations' Meetings

The Water and Sewage Works Manufacturers' Association, Inc., 170 Broadway, New York 7, New York, announces the following schedule of 1949 conferences and exhibits:

New Jersey Sewage Works Association, Hotel Stacy-Trent, Trenton, New Jersey, March 1949.

American Water Works Association, The Stevens Hotel, Chicago, Illinois, May 30, June 3, 1949.

New England Water Works Association, The Balsams, Dixville Notch, New Hampshire, September 13-16, 1949.

Parks Appointed Chairman

Dr. W. George Parks, F.A.I.C., professor of chemistry, Rhode Island State College, Kingston, Rhode Island, was appointed chairman of the Intersectional Contest Committee for the Rhode Island Section of the American Association of Textile Chemists and Colorists. Dr. Parks' paper, presented at the Intersection Contest in Augusta, Georgia, October 23rd, was entitled, "Some Conditions Affecting the Fixation of Vat Colors."

Among the members of the A.I.C. who served on the Committee for the 22nd Fall Meeting of the American Oil Chemists' Society, held at the Hotel Pennsylvania, New York, N.Y., November 15 to 18, were: Dr. Foster D. Snell, general chairman; C. P. Neidig, secretary; Harry Burrell, treasurer; Dr. Donald Price, chairman, Finance Committee; John B. Calkin, chairman, Publicity Committee; and Dr. Warren M. Sperry, chairman of hotel and banquet arrangements committee.

Sir Lawrence Bragg, Nobel prize winner and head of the Cavendish Laboratory at Cambridge University, and Dr. Max von Laue, Nobel prize winner, and visiting professor at the Institute for Advanced Study, Princeton, N.J., participated in the symposium on the study of crystals held at Polytechnic Institute of Brooklyn, November 12th.

Condensates

Ed. F. Degering, F.A.I.C.

The Bureau of Narcotics has given notice of its intention to amend the regulations governing the sale of narcotics to include Isoamidon among those products which are considered to have an addiction-forming liability and which are subject to control. Chemically, the new drug is 4,4-diphenyl - 5 - methyl - 6 - dimethyl - 3 - aminohexanone.

—The Merck Report

Every farm rat, of which there are about 200 million, eats about one bushel of grain per year.

According to the latest figures of needs supplied to the House Appropriations Committee by Paul G. Hoffman, administrator of the Economic Co-operation Administration, chemical industry products expected to be obtained from Western Hemisphere sources by the sixteen nations participating in the European Recovery Program will have a total value of $301,700,000 over the fifteen-month period from April 1, 1948, to June 30, 1949.

—The Merck Report

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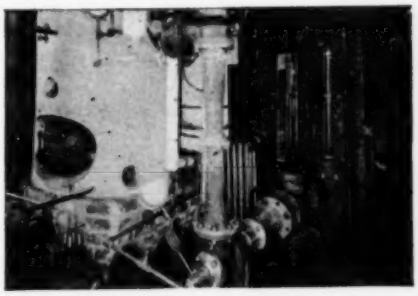

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